Administrative Rules Review Committee talking points concerning R307-230 - NOx Emission Limits for Natural Gas-Fired Water Heaters 10/30/2015

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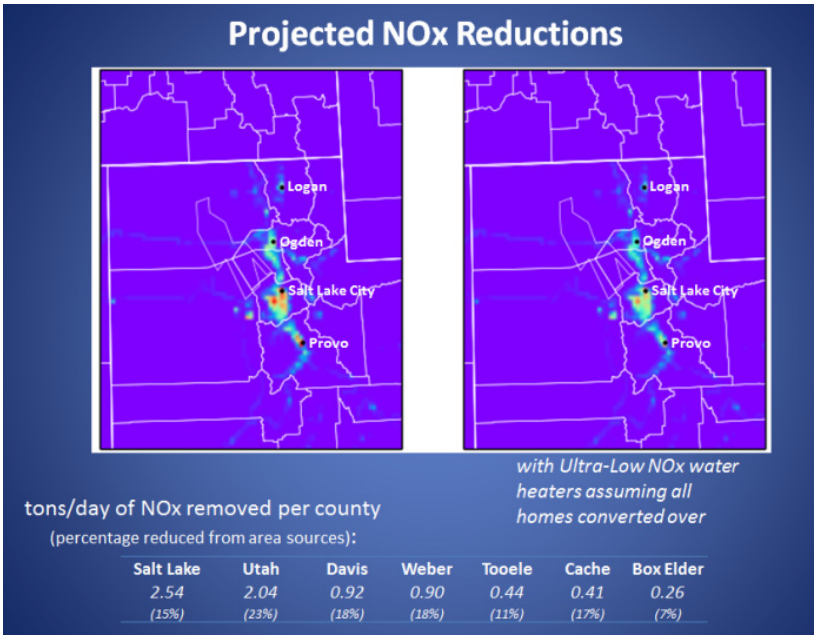
Background Information

- Oxides of nitrogen or NOx describe an air pollutant that is the subject of a National Ambient Air Quality Standard under the Clean Air Act and regulated in Utah under the Air Conservation Act
- NOx is a product of combustion in atmospheric air. Flame temperatures above 2,800 F and fuel to air ratios of 25-45% excess air increase the formation of NOx
- NOx is a precursor to the secondary formation of PM2.5 and ozone in Utah. NOx emission levels impact the attainment and maintenance of air quality standards in Utah
- The formation of NOx can be reduced by changing the characteristics of the flame while providing the same heat output per unit of fuel combusted
- Existing requirements in Texas and California have driven the development of Ultra-Low NOx burner technology for commercial and residential water-heating applications

Development of the Rule

- The rule was developed in response to a petition for rulemaking from the Governor's Clean Air Action Team in 2015
- The biggest future challenge for air quality is addressing emissions from the area source sector (homes and buildings) which is directly associated with population growth
- Adopting Ultra-Low NOx technology is much less costly than other options for reducing NOx
- Advanced notice of rulemaking was sent to the Air-Conditioning, Heating, and Refrigeration Institute (ACHRI) and to the Association of General Contractors for distribution to their membership, and to Sears, Home Depot and Lowe's corporate
- The rule was amended in response to comments for both labeling and timing of implementation
- The emission limits and testing methods are the same as required in Texas and California



- To comply with the rule, manufacturers can direct the distribution of the existing compliant models to Utah
- Ultra-Low NOx water heaters produce on average 75% less NOx than conventional appliances
- The compliance date for the rule is November 1, 2017, to allow for the realignment of distribution and to exhaust the existing inventory
- There is no requirement to replace existing water heaters. The rule requires the installation of the clean-burning technology during the lifecycle replacement of water heaters

Cost Considerations

- A June 2015 survey of internet prices from retailers showed the difference in price between standard models and Ultra-Low NOx models with similar features. As with any consumer product, prices are influenced by many factors

Type	Count	Average Price	Median Price	Min Price	Max Price	% High-altitude
Ultra-low NOX	36	$ 626.64	$ 598.25	$ 477.00	$1,169.00	78%
Conventional	64	$ 616.75	$ 582.00	$ 389.00	$1,044.99	80%

- Impacts to manufacture additional appliances to serve the Utah market will be minimal since the products are currently required in the two largest US markets

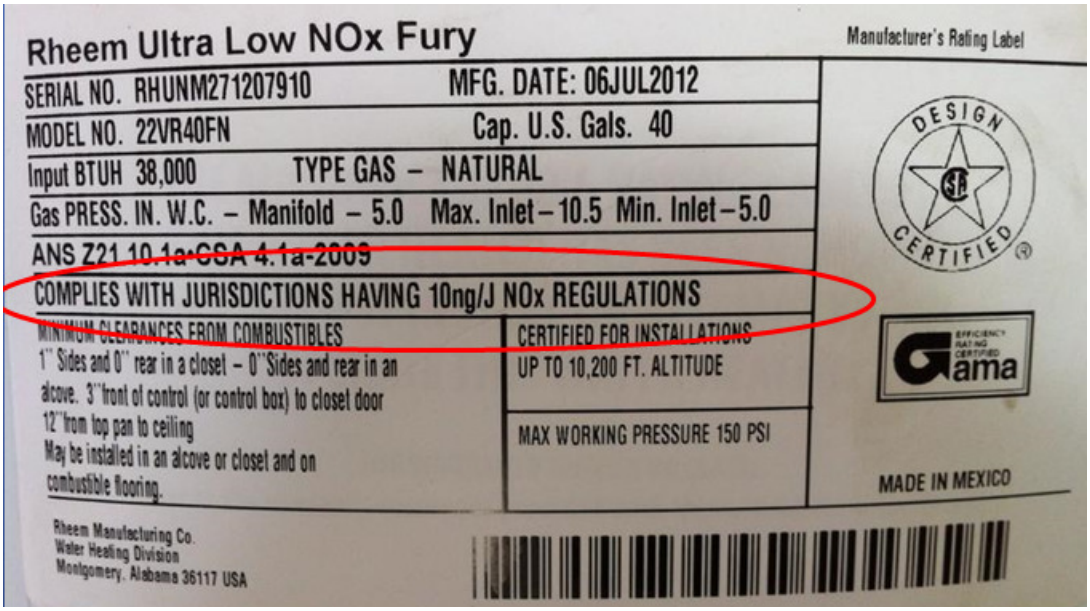
Authority to regulate emissions

- Utah Code 19-2-104. Powers of board.
  (1) The board may make rules in accordance with Title 63G, Chapter 3, Utah Administrative Rulemaking Act:
  (a) regarding the control, abatement, and prevention of air pollution from all sources and the establishment of the maximum quantity of air pollutants that may be emitted by an air pollutant source;
- Rule R307-230. NOx Emission Limits for Natural Gas-Fired Water Heaters was enacted after notice, proposal, public comment and adoption by the Utah Air Quality Board. The Utah Administrative Rulemaking Procedures were followed
- Air emission levels and ambient air quality will improve as a result of the cleaner-burning technology
- Emission reductions are achieved at a very low cost when compared to other strategies

Connection to Building Codes

- The NOx emission performance is independent of and does not conflict with any energy, plumbing or building code requirement

- International Building Code – Adopts the International Plumbing Code
- International Plumbing Code – governs the "materials, design and installation of water heaters and the related safety devices and appurtenances." The code is silent on emission levels of NOx (Chapter 5 Water Heaters, Section 501.1). Ultra-low NOx design does not amend or modify any provision of the code
- International Energy Conservation Code – The code includes minimum performance efficiency for water heaters but does not specify or forbid emission standards (Section R403 Systems). Ultra-low NOx design does not amend or modify any provision of the code



Conclusion

- The Ultra-Low NOx water heaters are the least expensive way to reduce a pollutant that contributes to our most pressing air quality issues (PM2.5 and ozone)
- Implementing this proven technology reduces the need to reduce emissions through strategies that are more expensive and more disruptive of people's lives